

REMARKS/ARGUMENTS

Claim 1-17, 21-26 and 31 are pending.

Applicants note with appreciation the indicated allowability of claims 3-4, 10-11, 16-17 and 22-25.

Claims 1-6, 7, 8, 9, 21, 26 and 31 were rejected under 35 USC § 103(a) as being unpatentable over US Patent 6,718,082 to Zhao et al. This rejection is respectfully traversed and reconsideration is respectfully requested.

It is respectfully submitted that Zhao et al. disclose a wavelength selective switch wherein the birefringent filter 18 selectively rotates the polarization of wavelengths of interest to produce a filtered signal which is then extracted (col. 6 lines 14-17, col. 6 lines 56-66). Hence, the birefringent crystal 18 can be utilized to select a wavelength range for extraction. However, the device of Zhao has a number of important differences from the present invention.

Firstly, the Zhao device has limited wavelength tuneability. Taking the example of a four channel system, where it is desired to change the wavelength of extraction, from, for example, a first wavelength channel to a fourth wavelength channel, it is necessary to alter the characteristics of the birefringent filter 18 such that the second and third channel are momentarily sent to the extraction channel. This will produce at best a “glitch” in the operation of these channels. In more severe cases, channel 2 and channel 3 will suffer attenuation or data loss.

The device of a preferred embodiment of the present invention does not suffer from this problem. The channel extraction or non-extraction is controlled by the liquid crystal element 18 and the wavelength channel of extraction is controlled by the Fabry Perot device 29. Hence, in contrast to Zhao, the device of the present invention has a decoupled mode of operation. The liquid crystal 28 can be utilized to turn on and off the process of channel extraction and the Fabry Perot element 29 can be utilized to extract a particular channel. In the above example where four channels are present, and the device is presently extracting channel 1, the liquid crystal 28 can be used to turn off the process of channel extraction. The Fabry Perot element 29 can then be retuned to extract channel 4 and the liquid crystal element 28 can then be

utilized to turn channel extraction back on, thereby extracting channel 4. Such an operation is not possible by that disclosed in Zhao. This capability is set out in the definition of the operation of the optical separation means in claim 1 as follows

“an optical separation means for spatially separating the selected optical signal from said series of optical signals when the polarisation state of the polarisation manipulated optical signal is in a first polarisation state, thereby forming a first and second output optical signal, and maintaining the spatial alignment of said selected optical signal with said series of optical signals when the polarisation manipulated optical signal is in a second polarisation state so as to form a third optical output.”

The advantageous operation of this embodiment is also described in paragraphs 52 to 56 of the present application. There is also no disclosure of this advantage in the prior art citation.

As the above feature is recited in claim 1 and provides advantageous operational characteristics and the prior art does not disclose how to implement these advantageous characteristics, it is respectfully submitted that it is not obvious and therefore, claim 1 is allowable.

Claims 2-6, 7 and 9 depend on Claim 1 and therefore are allowable for at least the reasons claim 1 is allowable.

Claim 10 recites "a tunable Fabry Perot etalon liquid crystal filter adjacent said first variable polarisation manipulation means for filtering a tunable wavelength from said rotated polarisation output and reflecting other wavelengths back through said first variable polarisation manipulation means, said first polarisation rotation elements, said first birefringent crystal element to said second optical waveguide." In the office action, the Examiner stated that "The purpose of the Etalon filter disclosed by applicant is also to maintain that spatial separation of the optical signal." It is respectfully submitted that this is incorrect. As clearly set out in paragraphs 44-47 and paragraph 63 of the present application, the Etalon filter provides for selective frequency filtering of the optical signal. The purpose of the Etalon filter is not to maintain the spatial separation of the optical signal. It is respectfully submitted that this is not

disclosed in Zhao et al. and therefore, claim 10 is allowable. Claim 11 depends on claim 10 and therefore, is allowable for at least the reasons claim 10 is allowable.

Claim 12 recites first and second optical separation means. As noted above, optical separation means is not disclosed in Zhao et al., and therefore, claim 12 is allowable. Claims 13-17 depend on claim 12 and therefore, are allowable for at least the reasons claim 12 is allowable.

Claim 31 recites " an optical separation means for spatially separating the selected optical signal from said series of optical signals when the polarisation state of the polarisation rotated optical signal is in a first polarisation state, thereby forming a first and second output optical signal, and maintaining the spatial alignment of said selected optical signal with said series of optical signals when the polarisation rotated optical signal is in a second polarisation state so as to form a third optical output." As noted above, this is not disclosed in Zhao et al., and therefore, claim 31 is allowable.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,



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